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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,879	11/13/2003	Mohamed Khalil	P1029 (15710RRUS02)	2297
64458 7590 11/09/2009 Hemingway & Hansen, LLP 1717 Main Street Comerica Bank Tower- Suite 2500 Dallas, TX 75201				
EXAMINER				
WONG, BLANCHE				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/712,879

Applicant(s)

KHALIL ET AL.

Examiner

BLANCHE WONG

Art Unit

2476

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claim 10 is objected to because of the following informalities:

With regard to claim 10, Examiner suggests replacing "a home agent located on the virtual private network" in line 4 with "the home agent" in consistent with the claim language in claims 8 and 9.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 1-7 and 16-20** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 1, "on a home network" does not clearly define the metes and bounds, and the scope, of the limitation because the "connections" are not necessary direct and the terms "located" is not necessary "coupled to" or "connected

to". The interchanges of these terms add to the confusion. E.g. "said mobile node is connected to a foreign network" can be read "said mobile node [located on the home network] is connected to a foreign network" when in a soft handoff situation, the mobile node moves toward the foreign network and has simultaneous communication between the home and foreign networks. Or "a home network having a security gateway and a home agent" precludes the security gateway linked to the home agent, although the claim later clarifies "said security gateway ... is connected to said home agent". See also omitting essential structural cooperative relationships rejection below.

Claim 1 is also rejected under omitting essential structural cooperative relationships of elements, and claims 2-7 are rejected because the claims depend from rejected claim 1.

Claim 16 is rejected under insufficient antecedent basis.

Claims 17-20 are rejected because the claims depend from rejected claim 16.

5. There is insufficient antecedent basis for this limitation in the claim.

Claim 16, line 8, "the home agent on the home network". The home agent is on the virtual private network in line 5.

Claim 16, line 9, "the correspondence node connected to said foreign network".

6. **Claims 1-7** are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such

omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are:

With regard to claim 1, it is unclear whether the foreign network is connected to the home network. The claim recites "a virtual private network on a home network", "said mobile node is connected to a foreign network", "said security gateway ... is connected to said home agent", and "a correspondence node located on the virtual private network on the home network and coupled to said home agent" The claim does not recite whether the foreign network is connected to the home network.

Claims 2-7 are rejected because the claims depend from rejected claim 1.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. **Claims 1,3-7,16,18-20** are rejected under 35 U.S.C. 102(a) as being anticipated by Sjostrand et al. (NPL "Mobile IP and Virtual Private Networks Problem Statement").

With regard to claim 1, Sjostrand discloses

a virtual private network (**VPN Domain**) on a home network (**VPN Domain in Section 2.1 Simple flat network**) having a security gateway (**VPN GW agent or**

FW/GW in Section 2.1 Simple flat network) and a home agent (**Home Agent or HA in Section 2.1 Simple flat network)**), wherein said mobile node is connected to a foreign network (**Foreign Network in Section 2.1 Simple flat network)**), and information packets are transmitted (**See MIP tunnel between Foreign Network and VPN Domain; arrow between Foreign Network and VPN Domain in Fig. 1 [Communication] With a foreign agent)** to the mobile node (**Mobile Node or MN in Section 2.1 Simple flat network)** from the virtual private network (**VPN Domain**), and wherein said security gateway (**VPN GW agent or FW/GW**) on the virtual private network is connected to said home agent (**Home Agent or HA**), said security gateway having an inner tunnel address (**IPsec in protocol stack for VPN Domain side in Fig. 1 [Communication] With a foreign agent)** for routing packets within the virtual private network on the home network (**VPN Domain**); and

a correspondence node (**CN in Section 2.1 Simple flat network**) located on the virtual private network (**VPN Domain**) on the home network (**VPN Domain**) and coupled to said home agent on the virtual private network (**connection between HA and CN in Section 2.1 Simple flat network**), wherein an information packet transmitted from the correspondence node (**CN**) is encapsulated by the home agent on the home network (**IP in protocol stack for VPN Domain side in Fig. 1 [Communication] With a foreign agent**), said encapsulated information packet is transmitted to the security gateway using the inner tunnel address (**IP**) and said security gateway transmits the encapsulated information packet to the mobile node (**See MIP tunnel between Foreign**

Network and VPN Domain; arrow between Foreign Network and VPN Domain in Fig. 1 [Communication] With a foreign agent).

With regard to claim 3, Sjostrand further discloses the security gateway further encapsulates the information packet **(IPsec in protocol stack for VPN Domain side in Fig. 1 [Communication] With a foreign agent).**

With regard to claim 4, Sjostrand further discloses the communication system does not use an external home agent for forwarding the information packet to the mobile node **(there is only one home agent in Section 2.1 Simple flat network).**

With regard to claim 5, Sjostrand further discloses the information packet includes an address for the security gateway **(MIP).**

With regard to claim 6, Sjostrand further discloses the information packet includes a virtual private network inner tunnel address **(IPsec).**

With regard to claim 7, Sjostrand further discloses the security gateway transmits the information packet to the home agent to forward outside the virtual private network to the mobile node **(See MIP tunnel between Foreign Network and VPN Domain; arrow between Foreign Network and VPN Domain in Fig. 1 [Communication] With a foreign agent).**

With regard to claim 16, Sjostrand discloses

providing a virtual private network (**VPN Domain**) on a home network (**VPN Domain in Section 2.1 Simple flat network**) with a home agent (**Home Agent or HA in Section 2.1 Simple flat network**) on said virtual private network (**VPN Domain**), said virtual private network (**VPN Domain**) being associated with a mobile node (**Mobile Node or MN in Section 2.1 Simple flat network**) connected to a foreign network (**Foreign Network in Section 2.1 Simple flat network**);

providing a security gateway (**VPN GW agent or FW/GW in Section 2.1 Simple flat network**) located on the virtual private network (**VPN Domain**) and connected to the home agent (**Home Agent or HA**), said security gateway (**VPN GW agent or FW/GW**) being designated with a gateway address (**public address of the corresponding HA, Section 2.2 Networks and internal routing**) for routing information packets to the virtual private network and having an inner tunnel address (**IP in protocol stack for VPN Domain side in Fig. 1 [Communication] With a foreign agent**) for routing information packets within the virtual private network;

forming an information packet associated with a correspondence node (**CN in Section 2.1 Simple flat network**) on the virtual private network for transmission to the mobile node;

transmitting the information packet to the security gateway using said inner tunnel address (**IP in protocol stack for VPN Domain side in Fig. 1 [Communication] With a foreign agent**);

encapsulating the information packet at the security gateway (**MIP and IPsec in protocol stack for VPN Domain side in Fig. 1 [Communication] With a foreign agent**); and

forwarding the information packet to the mobile node without using an external home agent (**there is only one home agent in Section 2.1 Simple flat network**).

With regard to claim 18, Sjostrand further discloses encapsulates the information packet at the home agent with the inner tunnel address to allow the correspondence node on the virtual private network to route packets to the security gateway (**IP in protocol stack for VPN Domain side in Fig. 1 [Communication] With a foreign agent**).

With regard to claim 19, Sjostrand further discloses transmitting the information packet out of the virtual private network from the home agent (**See MIP tunnel between Foreign Network and VPN Domain; arrow between Foreign Network and VPN Domain in Fig. 1 [Communication] With a foreign agent**).

With regard to claim 20, Sjostrand further discloses transmitting the information packet out of the virtual private network from the security gateway (**See MIP tunnel between Foreign Network and VPN Domain; arrow between Foreign Network and VPN Domain in Fig. 1 [Communication] With a foreign agent**).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 2 and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sjostrand.

With regard to claims 2 and 17, Sjostrand discloses the packet-based wireless communication system of claim 1 and the method for packet-based communication of claim 16.

The concept of encryption as it relates to a gateway is well-known as evidenced by a gateway's capability to also decrypt ("**VPN Gateway decapsulates and decrypts and also perform firewalling**", Section 2.1 Simple flat network).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine encryption, with the gateway in Sjostrand, in order to provide for the capability of encryption and decryption to enhance security.

11. **Claims 8-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sjostrand in view of Adrangi et al. (NPL "Problem Statement for Mobile IPv4 Traversal Across VPN Gateway").

With regard to claim 8, Sjostrand discloses

a foreign network (**Foreign Network in Section 2.1 Simple flat network**) coupled to a mobile node (**Mobile Node or MN in Section 2.1 Simple flat network**) associated with a virtual private network (**VPN Domain**) on a home network (**VPN Domain in Section 2.1 Simple flat network**) and having a public home address (**public address of the corresponding HA, Section 2.2 Networks and internal routing**) and a home agent (**Home Agent or HA in Section 2.1 Simple flat network**) on the virtual private network (**VPN Domain**);

a virtual private network gateway (**VPN GW agent or FW/GW in Section 2.1 Simple flat network**) receiving information packets entering and leaving the virtual private network (**VPN Domain**), with a virtual private network tunnel inner address (**IP**) (**IP in protocol stack for VPN Domain side in Fig. 1 [Communication] With a foreign agent**) used for routing packets to the virtual private network gateway (**VPN GW agent or FW/GW**) transmitted from nodes (**CN in Section 2.1 Simple flat network**) within the virtual private network (**VPN Domain**) on the home network (**VPN Domain**) and a virtual private network gateway address (**MIP/IPsec in protocol stack for VPN Domain side in Fig. 1 [Communication] With a foreign agent**) used for routing packets to the virtual private network gateway (**VPN GW agent or FW/GW**) transmitted from at least one mobile node (**Mobile Node or MN**) located outside the virtual private network on said foreign network (**Foreign Network in Section 2.1 Simple flat network**); and

the virtual private network tunnel inner address (**IP**) and virtual private network gateway address (**IPsec**) being sufficient for tunneling information packets to and within said virtual private network (**See MIP tunnel between Foreign Network and VPN Domain; arrow between Foreign Network and VPN Domain in Fig. 1 [Communication] With a foreign agent**).

Sjostrand discloses a mobile node located on the foreign network and further discloses a co-located care-of-address ("**the mobile node uses co-located care-of-address**", **Section 2.1, Simple flat network**). However, Sjostrand fails to explicitly show the mobile node location on the foreign network is designated by a care-of address.

In the analogous art of mobile IP, Adrangi discloses the mobile node location on the foreign network is designated by a care-of address (**CoA**) ("**In co-locate [with FA] mode, the MN obtains a CoA at its point of attachment ...**", **Section 6.1 MIPv4 Incompatibilities with VPN Gateway**).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine "the mobile node location on the foreign network is designated by a care-of address" as taught by Adrangi, with the co-located care-of-address in Sjostrand, in order to provide for a point of attachment for a mobile node outside of home network in a foreign network. Adrangi, Section 6.1 MIPv4 Incompatibilities with VPN Gateway.

With regard to claim 9, the combination of Sjostrand and Adrangi discloses the wireless communication system of claim 8. Sjostrand further discloses the information packet is forwarded outside the virtual private network from the virtual private network gateway for the mobile node **(See MIP tunnel between Foreign Network and VPN Domain; arrow between Foreign Network and VPN Domain in Fig. 1 [Communication] With a foreign agent)**. Adrangi further discloses care-of-address for the mobile node in a foreign network **(“In co-locate [with FA] mode, the MN obtains a CoA at its point of attachment ...”, Section 6.1 MIPv4 Incompatibilities with VPN Gateway)**.

The concept of using the care-of-address to reach a mobile node in a foreign network is well-known as evidenced by co-location as taught in Sjostrand and Adrangi.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine “using the care- of-address to reach a mobile node in a foreign network”, with the wireless communication system as taught by Sjostrand and Adrangi, to provide for a point of attachment to reach the mobile node. Adrangi, Section 6.1 MIPv4 Incompatibilities with VPN Gateway.

With regard to claim 10, the combination of Sjostrand and Adrangi discloses the wireless communication system of claim 8. Sjostrand further discloses the information packet is forwarded outside the virtual private network from the home agent for the mobile node **(See MIP tunnel between Foreign Network and VPN Domain; arrow between Foreign Network and VPN Domain in Fig. 1 [Communication] With a**

foreign agent). Adrangi further discloses care-of-address for the mobile node in a foreign network (**"In co-locate [with FA] mode, the MN obtains a CoA at its point of attachment ..."**, **Section 6.1 MIPv4 Incompatibilities with VPN Gateway**).

The concept of using the care-of-address to reach a mobile node in a foreign network is well-known as evidenced by co-location as taught in Sjostrand and Adrangi.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine "using the care- of-address to reach a mobile node in a foreign network", with the wireless communication system as taught by Sjostrand and Adrangi, to provide for a point of attachment to reach the mobile node. Adrangi, Section 6.1 MIPv4 Incompatibilities with VPN Gateway.

With regard to claim 11, the combination of Sjostrand and Adrangi discloses the wireless communication system of claim 8.

The combination fails to explicitly show the virtual private network gateway encrypts the information packet prior to transmitting the information packet from the virtual private network to the mobile node.

The concept of encryption as it relates to a gateway is well-known as evidenced by a gateway's capability to also decrypt as taught in Sjostrand (**"VPN Gateway decapsulates and decrypts and also perform firewalling"**, **Section 2.1 Simple flat network**).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine encryption, with the gateway in Sjostrand, in order to provide for the capability of encryption and decryption to enhance security.

With regard to claim 12, Sjostrand further discloses the home agent appends the virtual private network tunnel inner address (**IP**) to the information packet to route the information packet to the virtual private network (**IP in protocol stack for VPN Domain side in Fig. 1 [Communication] With a foreign agent**).

With regard to claim 13, the combination of Sjostrand and Adrangi discloses the wireless communication system of claim 8.

Adrangi further discloses appending the care-of-address to the information packet prior to transmitting the information packet from the virtual private network to the mobile node (**Fig. 6.1b shows IPsec tunnel endpoints, MN-CoA and the VPN External IP address**).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine "appending the care-of-address to the information packet prior to transmitting the information packet from the virtual private network to the mobile node" as taught in Adrangi, with the IPsec tunnel between the foreign and home networks in Sjostrand, in order to provide for transmission to a mobile node residing in a foreign network. Adrangi, Fig. 6.1b.

With regard to claim 14, the combination of Sjostrand and Adrangi discloses the wireless communication system of claim 8.

Adrangi further discloses appending the care-of-address to the information packet prior to transmitting the information packet from the virtual private network to the mobile node (**Fig. 6.1b shows IPsec tunnel endpoints, MN-CoA and the VPN External IP address**).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine "appending the care-of-address to the information packet prior to transmitting the information packet from the virtual private network to the mobile node" as taught in Adrangi, with the IPsec tunnel between the foreign and home networks in Sjostrand, in order to provide for transmission to a mobile node residing in a foreign network. Adrangi, Fig. 6.1b.

With regard to claim 15, the combination of Sjostrand and Adrangi discloses the wireless communication system of claim 8.

Adrangi further discloses appending the virtual private network gateway address to the information packet for routing the information packet to the virtual private network gateway (**Fig. 6.1b shows IPsec tunnel endpoints, MN-CoA and the VPN External IP address**).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine "appending the virtual private network gateway address to the information packet for routing the information packet to the virtual private network

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gateway" as taught in Adrangi, with the IPsec tunnel between the foreign and home networks in Sjostrand, in order to provide for transmission between the mobile node the VPN of the home network. Adrangi, Fig. 6.1b.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BLANCHE WONG whose telephone number is (571)272-3177. The examiner can normally be reached on Monday through Friday, 830am to 530pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Blanche Wong/
Examiner, Art Unit 2476
November 5, 2009